Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 2003 – (October 1, 2003 to Sept 30, 2003)

Project Title: No. 6: Identifying migration routes and wintering areas of common and king eiders breeding in Nunavut, Canada and Greenland.

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Partners Canadian Wildlife Service, Greenland Institute of Natural Resource, National Environmental Research Institute of Denmark

Project Description: Common and King Eider ducks are heavily hunted in north eastern Canada and west Greenland. In Greenland alone, more than 90 000 eiders are killed annually; a level of harvest that may not be sustainable. Recent evidence suggests that many eiders breeding in arctic Canada migrate to Greenland to winter, but details of their migration and wintering areas are unknown. A key requirement to assess the sustainability of the harvest in Greenland, is to identify affinities between eider breeding populations in both Canada and Greenland and their wintering grounds. In response, an international research team (Greenland, Canada, Denmark) initiated a satellite telemetry study in 2001 to generate information on the wintering affinities of these Common and King eider populations. Transmitters were implanted in Canada and Greenland in 2001, in Greenland only in 2002, and in both Canada and Greenland in 2003.

Objectives: The objective of this project, was to identify eider breeding populations in Canada and Greenland that migrate to winter in south west Greenland. This information will help determine the relative contribution of various King and Common eider duck populations to the winter harvest that occurs in Greenland. This information is required to determine the sustainability of the harvest, and also to assess whether certain sub-populations are at greater risk of population decline. Specifically, this project will, 1) determine the migration routes of Common and King eider ducks leaving Nunavut in fall (birds implanted in Canada), 2) determine the migration routes of Common and King Eider ducks returning to arctic Canada in spring (birds implanted in Greenland), 3) Locate the staging, moulting, and wintering areas of Common and King eiders breeding in west Greenland and Canada.

Preliminary Results: Preliminary research results from this project have already been presented to the Department of Environment in Greenland which is responsible for establishing harvest regulations. When combined with ongoing demographic and modeling research done by this team, this satellite telemetry research in 2001 and 2003 confirmed that 75% of eiders implanted in Canada while breeding migrate to west Greenland. This supports a similar finding based upon banding data alone. This has generated immediate efforts to legislate lower harvest levels of eiders in west Greenland in 2001. However, these efforts were met with strong political opposition from hunters and new harvest restrictions were subsequently reversed. This response emphasizes the need to establish credible scientific information to assess the sustainability of harvest, and the information generated by this satellite telemetry project is a key component of this.

Project Status: The field component of this project is complete. Ten transmitters were implanted into female common eider ducks in 2001 (no SDJV funding), and in the summer of 2003, the team implanted 16 transmitters into common eiders (9 females, 7 males) and 10 into king eiders (7 females, 3 males). Data is still being retrieved from these ducks and should continue to be throughout the winter of 2003-2004. After all transmitters have failed in the spring of 2004 and complete available data has been retrieved, the research team will prepare final reports for northern communities, the scientific community, and funding agencies. Several peer-reviewed manuscripts are planned and already underway. Real time locations of the ducks are available on the web site of the Danish Department of Environment – Polar Research Division, and overview maps are also available on the SDJV website.

Project Funding Sources (US funds)

Table 2. Detailed costs for both the Canadian and Greenland field component 2003 (in thousands of American dollars).

Cash only.

ITEM	DETAILS	COSTS	CWS	NWMB	PCSP	Denmark Arc Env.	Denmark NERI	Green. Inst.	SDJV*
Twin Otter air craft	Transport to camp	35	0	0	35	0	0	0	0
Commercial flights	From southern points	12	12	0	0	0	0	0	0
Inuit hiring	$110 x 3 x 45	8	8	0	0	0	0	0	0
Personnel	Field assistants	15	15	0	0	0	0	0	0
Freight	Shipping equipment	6	6	0	0	0	0	0	0
Food	Camp expendables	4	4	0	0	0	0	0	0
Accommodation	While in Iqaluit, Nunavut	2	2	0	0	0	0	0	0
Surgical equipment	Required for surgery	3	3	0	0	0	0	0	0
Transmitters and data	Common Eiders (CAN)	60	0	30	0	0	0	0	20
Transmitters and data	King Eiders (CAN)	60	0	30	0	0	0	0	0
Transmitters and data	King Eiders (GREEN)	55	0	0	0	55	0	0	0
Field work costs	Greenland	35	0	0	0	35	0	12	0
Staff salaries	Danish biologists	15	0	0	0	0	15	0	0
TOTAL		302	50	60	35	90	15	12	20

* The most cost effective approach was for the SDJV to directly purchase and supply the project with 10 Satellite Transmitters.

CWS – Canadian Wildlife Service
NWMB – Nunavut Wildlife Research Trust, Territorial Government Research Grant
PCSP – Polar Continental Shelf Project, Energy Mines and Resources
Denmark Arc Env. –Danish Department of Environment, Polar Research Institute
Den NERI - Danish national Environmental Research Institute
Green Inst. – Greenland Institute of Nature, Nuuk, Greenland

Table 2. Total funding profile over the course of this Satellite Telemetry project **(both** Canadian and Greenland field components) (American dollars)

AGENCY	ACTIVITY SUPPORTED	1999	2000	2001	2002	2003
Polar Continental Shelf Project	Twin Otter flying time	35	35	35	35	35
Canadian Wildlife Service	Field camp and salaries	50	50	50	50	50
Sea Duck Joint Venture	10 Satellite Transmitters	0	0	0	0	40
Nunavut Research Trust Fund	Satellite Transmitters	0	0	46	0	60
Greenland Inst. Of Natural Resources	Salary and research vessel	20	60	25	25	12
Danish Cooperation for the Arctic Environment	Satellite Transmitters and other expenditures	60	0	70	70	90
Danish National Environmental Research Institute	Salary and research vessel	20	60	25	25	15
Totals		185	205	251	205	302

Table 3. Total expenditures by category.

ACTIVITY	BREEDING	MOULTING, MIGRATION, AND WINTERING	TOTAL
Banding		0	0
Research – Satellite telemetry		302 000	302 000
Communication		10 000	10 000
Coordination		0	0

Data collected includes the following: summer movements and colony attendance patterns, location and duration of moult, migration routes in relation to sex, duration of migration, location of staging areas, arrival times to wintering areas, proportion of population sample wintering in Greenland and Canada, movement patterns on wintering areas.